
SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Interim Study of Span of Control

Report #99-28

**Prepared by
Office of the Inspector General**

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Re: Interim Study of Span of
Control -- Report #99-28

This study was performed pursuant to the Inspectors General's authority set forth in Chapter 20.055, F.S. The study focused on the District's organization and management structure in 1997 and 1999. The analyses and literature reviews were conducted intermittently between November 1998 and December 1999.

Sincerely,

Allen Vann
Inspector General

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Table of Contents

Study Purpose and Scope.....	1
Background	1
Methodology	3
Findings.....	4
No District Targets For Span Of Control.....	4
Overall Span Of Control Unchanged From 1997 To 1999.....	4
Span Of Control Varies Widely in Departments.....	5
Layers of Management/Supervision Decreased from 1997 to 1999	5
Conclusions and Recommendations	7
Overall Span Of Control Ratio Significantly Lower Than Recommended	7
Wide Variation In Division Spans Of Control Indicates Potential Problems And/Or Opportunities	9
Number Of Manager/Supervisor Layers Is Higher Than Recommended	11
Organization Structure Not Actively Managed.....	13
Responsibility Has Not Been Assigned For Managing Organization Structure.....	16
The District Should Be Guided By Lessons Learned By Others.....	17
 EXHIBITS	
Exhibit 1 – Inspector General Analysis of Major Organizational Changes	
Exhibit 2 – Distribution of Division Spans of Control	
Exhibit 3 – District-wide 1997 Span of Control & Levels of Management	
Exhibit 4 – District-wide 1999 Span of Control & Levels of Management	
Exhibit 5 – Division-level Example of Span of Control & Levels of Mgmt.	
Exhibit 6 – Worksheet for Estimating Optimum Span of Control	
Exhibit 7 – Guidelines for Defining Managers and Supervisors, State of Texas Auditor’s Office	

STUDY PURPOSE AND SCOPE

In FY98, the District contracted for a management assessment of the then-Department of Management Services. That assessment indicated that the Department's span of control was significantly lower and layers of management were significantly higher than all benchmarks. The consultant recommended implementing a customer-driven organizational structure to reduce layers of management and provide maximum flexibility to empower individuals and teams to improve quality, productivity and customer satisfaction. The consultant also recommended that the organizational assessment be extended to other functional areas of the District.

The purpose of this study is to develop agency-wide information on layers of management and span of control that would be advisory to District management in considering the staffing and organizational structure. Specifically, our objectives were to:

1. Document spans of control and levels of management for the entire District.
2. Assess recent trends and evaluate District ratios against benchmarks and current practices.
3. Recommend strategies for improvement.

This interim study does not take into account recent efforts by the current administration to improve the organization's structure. In addition there have been significant changes in names of organizational units.

BACKGROUND

The span of control and the layers of management in an organization determine the way the organization delegates tasks to organizational units and sub-units. Classical management theory (pre-1950) held that supervisors needed to maintain close control over their subordinates. Six subordinates were considered to be the maximum that one person could supervise effectively¹ -- a relatively low span of control. Organizations structured in accordance with this theory are called "command and control" organizations. They have a relatively high percentage of managers and supervisors and many layers resulting in "tall" organization.

¹ V.A. Graicunas, Relationships in the organization, in Luther Gulick and L. Urwick (eds). *Papers on the Science of Administration*, (A.M. Kelly, New York, 1969).

Contemporary management theory holds that "command and control" organizations are inefficient and inappropriate to today's workplace. In 1988, Peter Drucker predicted that in 20 years, large businesses would be knowledge-based and therefore composed largely of people who direct and control their own performance through information obtained from peers, customers and, on occasion, higher management.² Organizations, he said, will shift from manual and clerical workers to knowledgeable specialists who will resist the traditional command and control model. Current writers and executives support this thinking. Empowered employees, larger spans of control, and flatter organizational structures are current indicators of the more efficient and effective organizations.³

A consensus on the ideal ratio for span of control has not been reached, however. Management expert Tom Peters recommended in 1988 that well-performing organizations should operate in a range of 25 to 75 workers for every one supervisor.⁴ In this study, the District's span of control was found to be 4.25 with a maximum of seven reporting layers beginning with the front line supervisor. In 1993, the National Performance Review spearheaded by Vice President Al Gore called for broadening the span of control in the federal government from the average of 7 per supervisor to 15 per supervisor by

² Peter F. Drucker, The coming of the new organization, *Harvard Business Review* (Jan/Feb1988), pp.45-53.

³ George P. Hatrup and Brian H. Kleiner, How to establish the proper span of control for managers, *Industrial Management* (Nov/Dec 1993), pp28-29.

⁴ Tom Peters, *Thriving on Chaos: Handbook for a Management Revolution* (Alfred A. Knopf, Inc., New York, 1987), p.354, 359.

1999⁵. For the 27 largest agencies⁶, the average ratio had increased to 8.5 in FY1996 and the average ratio planned for FY1999 was 11.0.

City- and county-level spans of control are reported in studies performed from 1994 to 1997 for Seattle, WA⁷; Kings County, WA⁸; and Portland, OR⁹ with workforces numbering 9,734, 6,768 and 4,953 respectively. The ratios

⁵ Office of the Vice President, Transforming organizational structures, *Accompanying Report of the National Performance Review* (Washington D.C., September 1993), p.12. <<http://www.deming.eng.clemson.edu/pub.tqmbbs/rego/tos2.txt>>

⁶ National Partnership for Reinventing Government, *Appendix H: Progress in streamlining management control positions*, 9/22/98. <<http://www.npr.gov/library/nprprt/annrpt/vp-rpt96/appendix/position.html>>

⁷ Office of the City Auditor, *Ratio of Staff to Managers in City Government* (Seattle, Washington, January 25, 1996), p.6. <<http://www.pan.ci.seattle.wa.us/audit/9602-rpt.htm>>

⁸ Metropolitan King County (WA) Auditor's Office, *Management Study: Span of Control, Report No. 94-1*. <<http://www.metrokc.gov/auditor.span.htm>>

⁹ Audit Services Division, *Span of Control Study*, City of Portland, Oregon, (1994).

reported for these three entities were 5.9, 8.9 and 6.0 respectively. In a 1998 report for the District, Johnson & Johnson Associates, Inc. cited 13.0 as the benchmark ratio for span of control in the public sector¹⁰.

A 1993 Conference Board study referenced in the Seattle audit reported a median span of control in private companies of 8.8. Spans of control for the studied companies ranged from 2.3 to 83.4 with clusters around 5-6, 10-12 and the mid-20's.

Span of control has a direct bearing on the number of layers in an organization, which is a measure of the length of an organization's lines of communications. These two measures are indicators of the efficiency and effectiveness of an agency. Tom Peters suggests that most organizations should need only three layers: first line supervisors, division heads and unit manager (plant, operations or distribution manager). He suggests five layers are the maximum needed for any organization from top to bottom, with the maximum reserved only for very complex organizations such as multi-dimensional firms¹¹. Most authorities agree with these recommendations.

METHODOLOGY

Two points in time were selected for calculation of span of control ratios: January 1997 and January 1999. In order to achieve our objectives we:

- Obtained organization charts for the two time periods and calculated span of control ratios and levels of management/supervision by division, department and agency-wide.
- Reviewed current management literature on organizational theory and practices.
- Compared District ratios to benchmarks and practices reported in the literature.
- Developed a tool to assist management in setting targets for improvement.

¹⁰ Johnson & Johnson Associates, Inc., *SFWMD Management Services Department: Enterprise Reengineering Project Report, Contract #C-8950*, (February 20, 1998), p.7.

¹¹ Peters, p.359.

Span of control is defined as the number of employees supervised by one manager or supervisor. The span of control ratio is calculated by dividing the total non-managerial/supervisory positions by the total supervisory/managerial positions. For this study, a management position was defined as any position in the District's management job family that also is shown on the organization chart with at least one direct report. A supervisory position was defined as any position other than management that is shown on the organization chart with at least one direct report. Layers of management and supervision were counted from the bottom up beginning with the lowest position having at least one direct report.

Service centers were grouped according to their responsibilities in order to compare them with other District offices and departments. Service centers with regulatory responsibilities include Ft. Myers, Okeechobee and Orlando. Only the Big Cypress Basin has responsibility for operations and maintenance of structures and canals. Service centers with neither regulatory nor operation and maintenance responsibilities include Keys, Broward, Miami-Dade and Martin/St. Lucie.

FINDINGS

No District Targets For Span of Control

Agency targets have not been set for levels of management or span of control. In 1993 and 1998, Human Resources managers directed staff to calculate department-level spans of control; however, no evidence was found during the current study that the information was used by management to set targets or standards for organization structure. Human Resources currently is responsible for maintaining and updating organization charts; however, no responsibility has been assigned for approving or in any way controlling the content of the charts which are submitted by department staff.

Overall Span of Control Unchanged From 1997 To 1999

During the 24-month period from January 1997 to January 1999, agency-wide span of control was essentially unchanged at 4.2 employees per manager/supervisor position. The number of District manager and supervisor positions and total non-supervisory positions also were essentially unchanged. The number of offices and departments remained constant at 16; however, functions were moved among departments, primarily among Budget and Procurement, Management Services and Enterprise Engineering which

became Financial Management, Business Resources and Information Technology in 1999. Exhibit 1 illustrates the major divisions created and divisions moved among departments from 1995 to 1997 to 1999.

No trends were identified that warranted further comparative analysis. Agency statistics for the two points in time are presented below.

Measures	1997	1999	Change	%
Total Managers & Supervisors	351	349.5	(1.5)	(0.4)
Total Non-supervisory Positions	1473	1486.5	13.5	0.9
Agency-wide Span of Control	4.20	4.25	0.05	

Span of Control Varies Widely in Departments

In January 1999, spans of control for nine departments and service center groups having 90 or more employees ranged from 3.35 to 6.15. The median of the ratios was 4.48. Department size ranged from 93 to 527.5 positions; however, no correlation was found between size and span of control.

Departments/Groups with >90 positions	REG SCs	ITD	OBR	REG	PLN	ERD	CLM	WRE	OMD	District
Total Positions	93	94	104	131	137	153	156	251	528	1836
Span of Control Ratio	6.15	5.27	3.73	4.02	4.48	3.94	3.22	4.70	4.61	4.25

In January 1999, organization charts were produced for 91 divisions. Spans of control for those divisions ranged from 0.3 to 19.0, but the majority (84%) is at or below 6.0. The average ratio for all divisions is 4.2. The distribution of division ratios is presented in Exhibit 2.

Layers of Management/Supervision Decreased From 1997 to 1999

Layers of management and supervision were counted from the bottom up, starting with the first employee having one or more direct report. The maximum layers dropped from 8 to 7 between January 1997 and January 1999. This was due to elimination of one layer (6 to 5) in the Operations and Maintenance Department. Executive management (Executive Director and Deputy Executive Director positions) accounted for two layers in both time periods. Four of the nine department units with 90 or more employees had a maximum of 5 reporting layers in 1999.

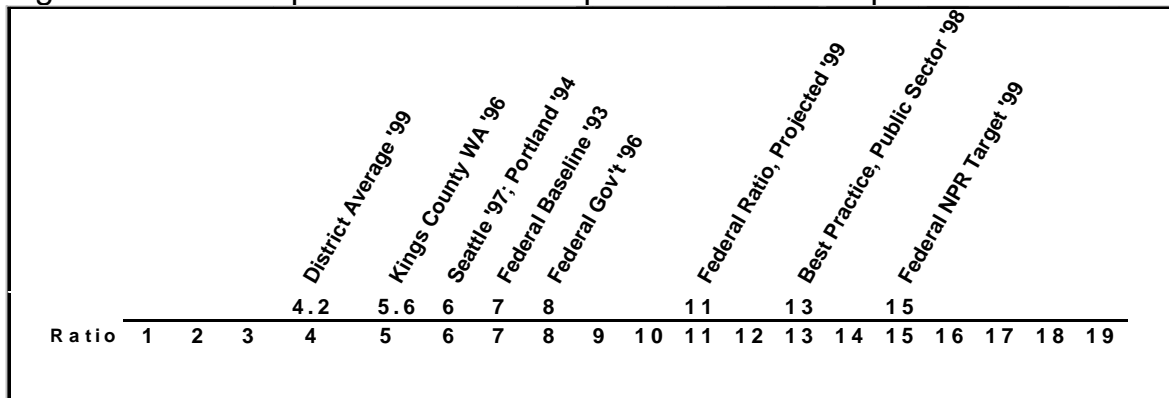
Department data that were compiled to calculate span of control and levels of management/supervision are presented for 1999 and 1997 in Exhibit 3 and 4. Division level charts are available upon request; for 1999 these charts also list the titles of all positions that were counted as management or supervision in each layer. An example is provided in Exhibit 5.

CONCLUSIONS AND RECOMMENDATIONS

Overall Span of Control Ratio Significantly Lower Than Recommended

The current District average span of control ratio of 4.25 is significantly lower than practices and benchmarks cited in current literature. The relative position of the District is illustrated in Figure 1.

Figure 1: District Span of Control compared with current practices



Some of the disadvantages associated with low spans of control are¹²:

- Superiors tend to get too involved in subordinate's work,
- Personnel costs tend to be higher due to many levels of management,
- Overhead costs tend to be higher due to the additional support personnel and office space associated with more managers, and
- Communications become distorted due to a larger number of management layers.

The District may be missing some opportunities associated with larger spans of control. They include:

- improved communications,
- greater flexibility,
- reduced personnel and overhead cost,

¹² Hattrup and Kleiner, p.28.

- increased delegation by supervisors,
- improved employee morale due to less detailed supervision,
- increased job satisfaction because subordinate jobs are more fulfilling due to increased responsibility,
- more subordinate growth opportunity, and
- increased reliance and trust from supervisors.

The Workplace Environment Survey¹³ conducted for the District in December 1998 identified a desire on the part of employees to realize some of these advantages. Specifically, employees identified a desire to decrease managerial control and be more innovative.

No attempt has been made in this study to determine the appropriate span of control for the District as a whole. This is Management's prerogative based upon overall organizational objectives. Span of control targets should be set for the agency and for individual departments. The underlying rationale for these targets and for changing the status quo should be documented so everyone understands why changes are being made. The District can achieve greater acceptance of, and support for, recommended changes if the associated rationale and targeted benefits are clearly defined.

Recommendation

1. Set a target span of control ratio for Departments and the Agency.

Management Response: Management concurs that a target span of control is a good operating practice. Establishing a uniform span of control for all District organizational units is probably not practical, however, given the nature of the District's business. Unlike many organizations, the District generally does not have large concentrations of staff performing the same functions which could lead to a greater ratio of supervisors to employee.

Spans of control will vary by department considering the nature of the work performed, the specialty of the disciplines, the similarity of positions, and the self-directed work teams established for most

¹³ RPC Associates, Inc., *Preliminary Report of the Work Environment Scale (WES) Survey* (February 24, 1999). <<http://iweb/iwebB501/mso/wessurv.htm>

projects. Thus we know the ratio will vary across the District. Management will establish a span of control guideline considering all the above factors.

Responsible Department: Executive Office

Estimated Completion Date: July, 2000

Wide Variation in Division Spans of Control Indicates Potential Problems and/or Opportunities

Although a high percent of division ratios falls within the range 0.3 to 6.0 District-wide, greater variability exists among the divisions *within* some departments. Some examples are listed below:

Department/ Division	Division	Span of Control
WRE	Quality Assurance	10.0
	Chemistry Lab	1.7
CLM	Engineering & Project Mgmt	15.0
	L. Stewardship	2.0
ERD	Everglades Systems Research	10.7
	Okeechobee Systems Research	1.3
REG	Water Use	7.8
	EAA	2.2
ITD	Training	7.8
	Information Services	3.0

Many factors influence appropriate span of control. The following are consistently mentioned in management literature:

- Complexity of Work
- Similarity of Work
- Task Certainty
- Clarity of Objectives
- Risk to Organization
- Public Scrutiny
- Number of Temporary Staff
- Employee Turnover
- Management Skill
- Non-supervisory Duties of Management
- Coordination Needs
- Staff Assistance
- Subordinate Qualifications
- Location of Subordinates

Divisions with low spans of control may have diminished effectiveness due to under-utilization of the talents of higher paid managers who could manage

more staff, and under-utilization of service level staff who could assume more responsibility.¹⁴ The managers in each organizational unit are in the best position to assess the importance of each factor to the work of a unit; however, no technique was found in the literature for using these factors to arrive at the appropriate span of control for an organization.

As part of this study, a tool was developed that could be used by District managers to determine an appropriate span of control range for District divisions. It is included in Exhibit 6. The tool allows a manager to rank a division, for example, on a scale of 1 to 5 for each of the factors that influence span of control and calculate a single rating based on equal weighting of all factors. With ratings for each of the divisions in the District, senior management would have a picture of the variability of management and supervisory needs among units of the agency.

Senior management should study the variability of factor results, establish a target range for District divisions and assign span of control targets for divisions to achieve over a period of time. The table below illustrates how such targets could be established given a span of control range of 4.0 to 10.0.

Sample Range													
4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	
Factor Result													
1.0	1.3	1.6	2.0	2.3	2.6	3.0	3.3	3.6	4.0	4.3	4.6	5.0	

Recommendation

2. Establish a range for Division spans of control and Division targets.

Management Response: Reference response to number 1 above.

Responsible Department: Deputy Executive Directors

Estimated Completion Date: July, 2000

¹⁴ Office of the City Auditor (Seattle), p.6.

Number of Manager/Supervisor Layers is Higher Than Recommended

The management literature suggests that three layers should be sufficient for most organizations with no more than five layers in even the most complex organizations, public or private. The organization charts analyzed for this study indicate a maximum of 7 layers in the District -- from first line supervisor to Executive Director. Table 1 illustrates how the layers in each department or office grouping build to the agency total of seven. An asterisk in a cell indicates that only a portion of the office or department reports through the additional layer.

Table 1: District-wide layers of management and supervision

Layer	IG	BCB	GPA	Non-Reg	EXO	OFM	LEG	REG SC	ITD	OBR	REG	PLN	ERD	CLM	WRE	OMD	District
7					X												X
6					X												X
5											*			X	*	*	X
4										X	X	*		X	X	X	X
3		*				X	X	X	X	X	X	X	X	X	X	X	X
2		X	*	*		X	X	X	X	X	X	X	X	X	X	X	X
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Management authorities suggest that non-value added layers of management are not benign¹⁵. Negative impacts include:

- delay in timely completion of work products;
- eventual customer dissatisfaction, due to the above;
- micro-management to justify their existence;
- pay and classification problems when layers are added to justify grade levels;

¹⁵ Letter from John Sturdivant to the National Performance Review, quoted in *Re-inventing Human Resource Management*, unpublished National Performance Review report (September 1993), p.29.

- distortion of communication when it passes through several layers of management;
- diffusion of accountability within an organization; and
- delayed communication, i.e., guidance takes longer to flow down the chain of command and ideas longer to rise up.

One means of managing organization structure is to establish ground rules for adding layers. Without such ground rules that are clearly linked to organizational objectives, decisions are more likely to be influenced by the needs or preferences of individual units or managers. Defining the 'value added' for each additional layer would give managers consistent criteria to use when organizational changes are contemplated, and it would provide a basis on which to approve or disapprove proposed changes over time.

The 'value added' for each layer also should be reflected in the job descriptions for positions that would function at each layer of the organization. Recommendation #4 references some guidelines for definitions of Manager and Supervisor. These could be further refined to define the 'value added' for additional layers that Management considers essential the District structure.

Recommendation

3. Define value added by Agency layers and set Agency maximum.

Management Response: Management concurs with the recommendation. Value Added will be determined as follows:

1. Executive Director: Manages the overall organization to meet the mission established by the Governing Board.
2. Deputy Executive Directors, Director ECP, Director Gov't Affairs and Communication
Manage core business processes for major portions of the organization
3. Department Directors: Manage multiple mission critical programs
 - 3(a) Deputy Department Directors: For departments with 150 or more staff, assist with managing mission-critical programs.

4. Division Directors: Manage multiple work groups and/or teams led by supervisors/managers with specialty assignment.
5. Managers/Supervisors: Manage a work group of staff with similar functions.

The "value added" of layers of management will be reviewed with each proposed position description submitted. Value added will be defined by the above guidelines. The District will strive for a maximum of five (5) levels between the first line supervisor and the Executive Director although extenuating circumstances might prevent achieving this.

Responsible Department: Executive Director with delegation to Deputy Executive Directors, Director ECP, Director Government Affairs and Communications with assistance from Human Resources

Estimated Completion Date: July, 2000

Organization Structure Not Actively Managed

In his book Thriving on Chaos, Tom Peters comments, "My co-authors and I downplayed the importance of structure in In Search of Excellence and A Passion for Excellence. We were terribly mistaken. Good intentions and brilliant proposals will be dead-ended, delayed, sabotaged, massaged to death, or revised beyond recognition or usefulness by the over-layered structures at most large and all too many smaller firms."¹⁶

Information assembled during this study suggests that the District does, in fact, downplay the importance of structure in achieving its mission-driven objectives. The agency lacks a system for easily calculating and managing span of control and responsibility is not assigned to human resources for monitoring duties of managers and supervisors and how these are reflected on organization charts. Without a tool in place to calculate span of control and measure the number of levels in the organization, the district is not in a position to evaluate itself based upon facts.

¹⁶ Peters, p.356.

An important reason to manage organization structure and span of control is that these strongly influence how the *employees* in the agency are managed. Defining the authority and responsibilities that distinguish managers/supervisors from non-managers/supervisors would give managers consistent criteria to use when changes are contemplated in reporting relationships or job descriptions. It also would provide a basis on which to approve or disapprove such changes.

The State of Texas developed guidelines for defining managers and supervisors.¹⁷ Their guidelines identify a distinguishing feature of managers and supervisors -- that they must actually manage or supervise *people*, not merely manage or oversee a *function*. A lower span of control means that a larger percentage of total employees are doing the *people management* in an agency. The matrix at the right illustrates the impact of changing span of control on the size of the manager and supervisor ranks. Based on total employment of 1836, a one point change up or down in the span of control ratio, say between 4.25 and 5.25, adds or subtracts 56 *people managers*.

Tot. Emps	Total M+S	% M+S	Span of Control	Reduction in M+S
1836	350	19%	4.25	
1836	330	18%	4.56	19
1836	312	17%	4.88	37
1836	294	16%	5.25	56
1836	275	15%	5.67	74
1836	257	14%	6.14	92
1836	239	13%	6.69	111
1836	220	12%	7.33	129
1836	202	11%	8.09	148

Given that technical competence often is the primary or over-riding criterion for promotion into supervisory and managerial ranks, there is greater risk that people management will not be done well when the managerial ranks are large. It is easier to train and monitor the employee management skills of a smaller group than a larger one.

The State of Texas definitions of manager and supervisor are reproduced in Exhibit 7 as guidelines for the District.

¹⁷ <http://www.hr.state.tx.us/GenInfo/HRInventory/Inventory99p1.htm>

Recommendation

4. Distinguish responsibilities of managers and non-managers.

Management Response: Management concurs with the recommendation. The following criteria will be applied to managers and supervisors:

- Has responsibility for a work unit of a program, and
- Administers one or more policies or programs of the District,
OR
- Manages, administers and controls a field station or service center,
OR
- Has substantial responsibility in human resources management, legislative relations, public information or the preparation and administration of budgets.

AND

- Exercises supervisory authority that is not routine or clerical in nature and requires the consistent use of independent judgement including,
- Hire,
- Discipline (demote, suspend, terminate),
- Reward (grant merit increases, promotions, awards),
- Assign/reassign duties,
- Approve leave of absence requests,
- Resolve/settle employee relations issues,
- Serve as primary evaluator for an employee's performance.

A non-manager has none of the above responsibilities

Responsible Department: Human Resources

Estimated Completion Date: On-going with periodic reports to the Governing Board Human Resource Committee.

Responsibility Has Not Been Assigned For Managing Organization Structure

The District cannot be assured that organization structure and staffing are being managed in accordance with a plan or strategy unless responsibility is clearly assigned for performing these tasks and routinely reporting to senior management. Currently, Human Resources staff coordinate a quarterly update of organization charts, but they have no authority or responsibility to ensure that changes in the charts are consistent with management objectives. Once management objectives have been defined, Human Resources should be empowered to approve or disapprove changes in job descriptions or reporting relationships based upon these objectives.

Additional electronic tools would facilitate this task. In this study, using organization charts to count managers and supervisors and levels of management was cumbersome and time-consuming. No other reliable source of information was available. Helpful tools might include:

- A Table of Organization identifying all authorized positions, and the level of supervision or management in which they occur.
- A software application that would aid in tracking and reconciling primary evaluators and reporting relationships on organization charts.

Research for this study revealed an electronic tool in use by the State of North Carolina that may be worth investigating.¹⁸

Recommendation

5. Assign authority and responsibility for managing organization structure.

Management Response: Management concurs with this recommendation.

Organization changes are approved by the Chief of Staff, appropriate Deputy Executive Director, and the Attrition Management Group. During the next year, the policy will be changed so the organization structure cannot be changed unless:

- A function is eliminated and staff must be redirected,
- A function is created due to legislative requirements, Governing Board direction or operational necessity,

¹⁸ Memorandum from C.A. Chapman, Application Development Manager, Office of State Personnel (North Carolina), to Human Resources Directors, *Implementation of Span of Control System within PMIS* (07/22/99) <<http://www.state.nc.us.OPS/forms/memos/soc.html>>

- In-class promotions occur,
- Demotions or redirections occur, and
- A position's duties change resulting in a title change.

Human Resources Employment/Staffing will attempt to identify software in conjunction with the review of Human Resource Information Systems (HRIS) to facilitate organization chart development.

Responsible Department: Executive Office

Estimated Completion Date: Budget Year October 2000

The District Should Be Guided By Lessons Learned By Others

In our review of management literature, the most frequent criticism of the federal government's attempts to increase span of control was that structural changes were made before the pre-requisite training and improvements were implemented. The National Performance Review endorsed four strategies that address organizational structure and have successfully changed large bureaucratic organizations in the private and public sector. These are streamline headquarters and field structures; re-engineer work processes; create boundary-crossing partnerships; and create self-managing work teams.¹⁹ Among the expectations were that process re-engineering would naturally result in some streamlining that would make larger spans of control workable, and that extensive training would be provided to support a transition to self-managing teams.

Critics of the implementation point out that spans of control were increased for supervisors before essential improvements were made to make those changes viable. Consequently, some supervisors found themselves working through the same processes and procedures but with greatly increased spans of control. The District should take a lesson from the federal experience and develop a clear plan for the training and transitions needed to implement change.

¹⁹ Office of the Vice President, p.9-22. <http://www.deming.eng.clemson.edu.pub.tqmbbs/rego/tos2.txt>

Recommendation

6. Develop a plan before implementing changes.

Management Response: Management concurs with the recommendation. A performance-based budget supporting the core business functions will alleviate part of the problem in implementing change and efforts are underway to transition to this process.

Responsible Department: Executive Office and Human Resources

Estimated Completion Date: During the 2001 budget cycle and ongoing thereafter.

Exhibit 1: Office of Inspector General Analysis of Major Organizational Changes

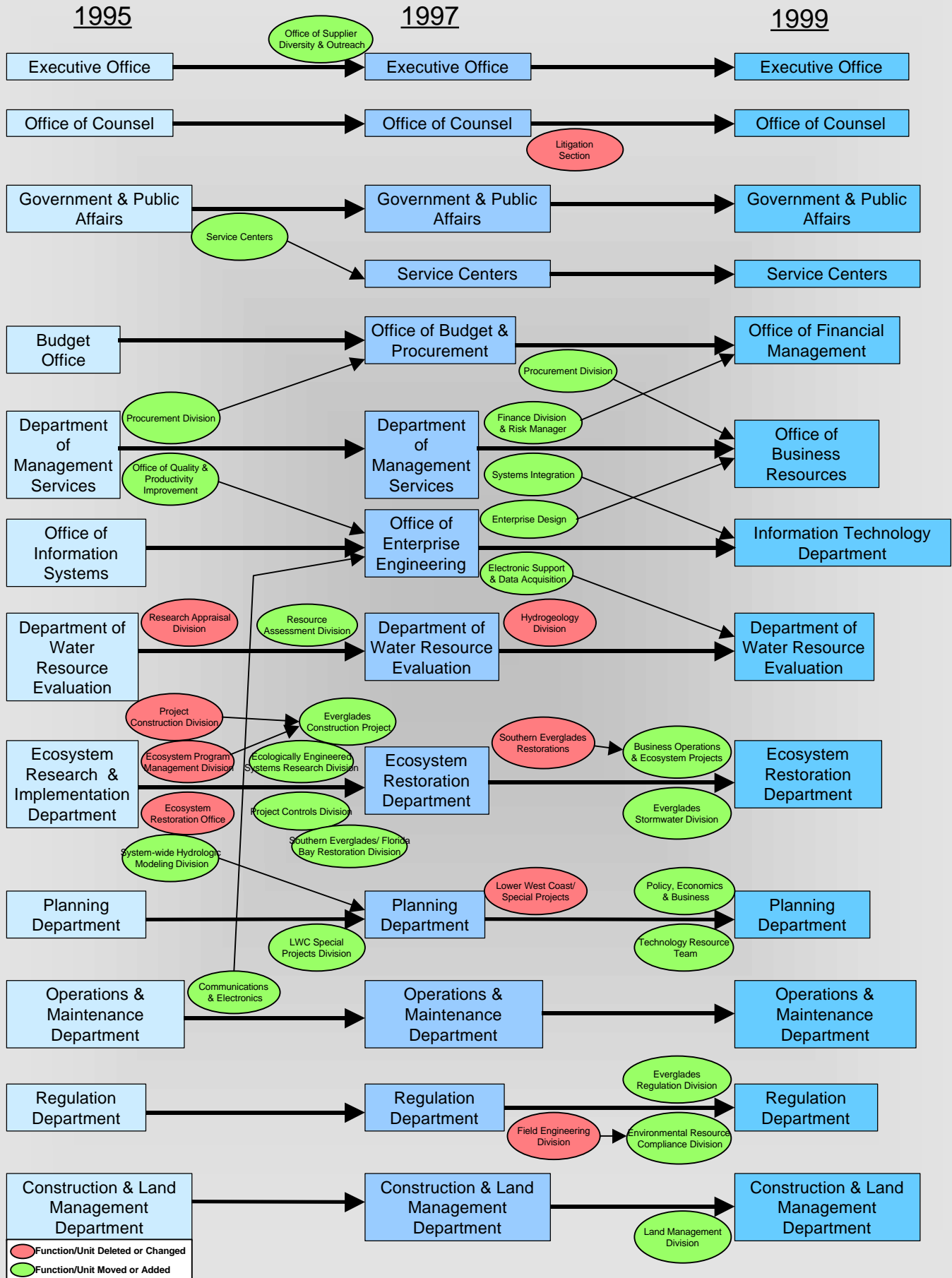
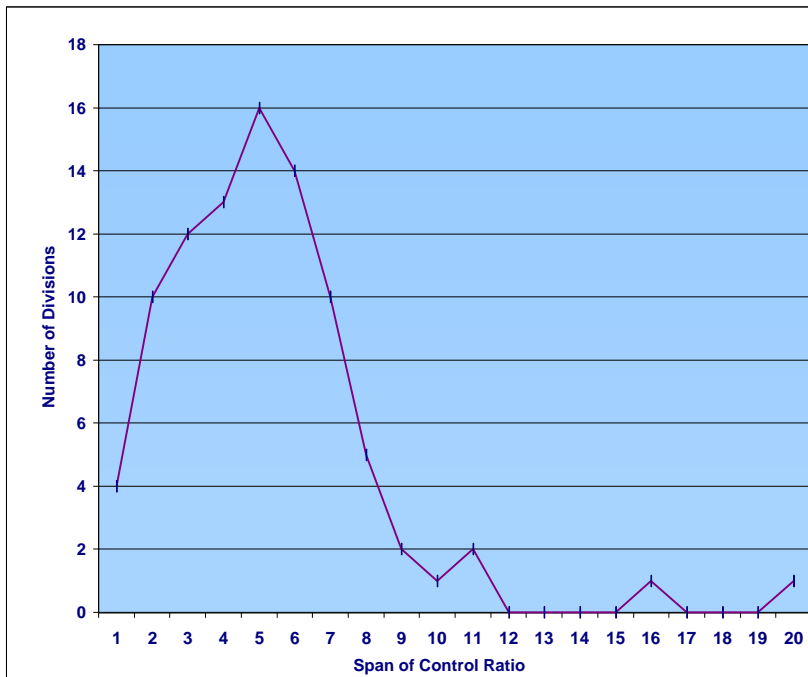
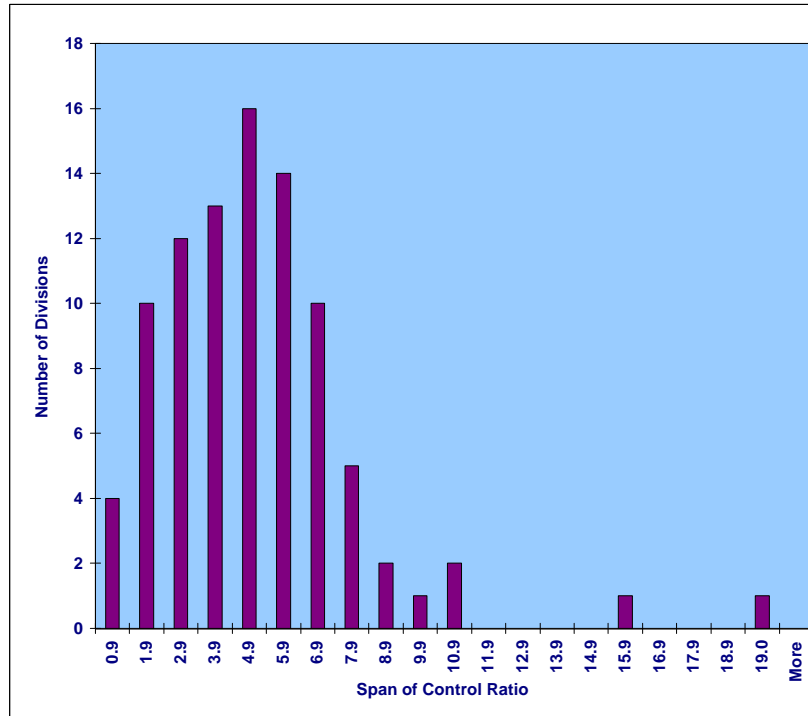


Exhibit 2

Distribution of Division Spans of Control

January 1999

Ratio	Dept	Division
0.3	CLM	Dept Dir & Staff
0.5	MIA SC	Dept Dir & Staff
0.5	ERD	Field Ops
0.7	OMD	Dept Dir & Staff
1.0	StL SC	Dept Dir & Staff
1.0	OR SC	Admin
1.0	OBR	Security
1.0	ERD	Dept Dir & Staff
1.0	WRE	Div Admin
1.0	WRE	WQM Staff
1.3	ERD	Okee Sys
1.3	OBR	Dept Dir & Staff
1.5	PLN	Dept Dir & Staff
1.7	WRE	Chem Lab
2.0	EXO	Exec Dirs &
2.0	EXO	Emerg Mgmt
2.0	ITD	Dept Dir & Staff
2.0	GPA	Dept Dir & Staff
2.0	CLM	Steward
2.0	REG	Dept Dir & Staff
2.0	OMD	Engrg
2.0	WRE	Dept Dir & Staff
2.0	WRE	Organics Proj
2.2	REG	EAA
2.4	OMD	Pump
2.5	CLM	Land Mgmt
3.0	ITD	Info Serv
3.0	GPA	Business Ops
3.0	GPA	Mass Media
3.3	CLM	Bus Sys
3.3	CLM	Right of Way
3.3	CLM	Survey & Eng
3.5	CLM	Construct
3.5	OMD	Veg
3.5	OMD	Ops
3.7	OBR	General
3.7	REG	NRM
3.7	PLN	Policy
3.8	REG	Complianc
4.0	BRO	Broward
4.0	OK SC	ERP
4.0	OR SC	SW & FE
4.0	OR SC	Steward
4.0	GPA	Outreach
4.0	ERD	Stormwater
4.2	OBR	Procuremnt
4.3	REG	Surface Water
4.4	ERD	ECP
4.4	WRE	WPB Data
4.5	ERD	Ecological Eng Sys
4.6	OMD	Kiss
4.6	PLN	Lower East Coast
4.6	OBR	Human Resource
4.6	PLN	Upper Dist
4.7	OMD	WPB
5.0	FIN	Budget
5.0	OR SC	NRM & WU
5.0	OBR	Flight
5.0	REG	Info Mgmt
5.0	ERD	Kissimmee
5.3	OMD	OpSup + Staff
5.4	OMD	Clew
5.5	ERD	Business Ops
5.5	WRE	Data & Geo Info Sys
5.5	PLN	Modeling
5.5	PLN	Tech Team
5.7	ITD	Proj Mgmt
5.7	OMD	Home
5.8	OMD	Okee
6.0	EXO	Supplier
6.0	ITD	Infrastruct
6.0	FinM	Regulation
6.0	GPA	Education
6.0	OBR	Enterprise
6.0	ERD	Proj Control
6.0	WRE	Okee Data
6.1	WRE	Resource Assess
6.3	OMD	Miami
6.8	OMD	Ft. L
7.0	FIN	Accounting
7.0	ITD	Visual
7.0	CLM	Real Estate
7.2	WRE	Electronic Support
7.6	WRE	Hydro Data Process
8.0	ITD	Training
8.0	REG	Water Use
9.0	FIN	Dept Dir & Staff
10.0	WRE	Quality Assurance
10.7	ERD	Everglades Sys
15.0	CLM	Eng & Proj Mgmt
19.0	FinM	Service Cntr & Staff
91		Total Divisions



Division	Ratio	Dept
Broward	4.0	BRO
Dept Dir & Staff	0.3	CLM
Steward	2.0	CLM
Land Mgmt	2.5	CLM
Bus Sys	3.3	CLM
Right of Way	3.3	CLM
Survey & Eng	3.3	CLM
Construct	3.5	CLM
Real Estate	7.0	CLM
Eng & Proj Mgmt	15.0	CLM
Field Ops	0.5	ERD
Dept Dir & Staff	1.0	ERD
Okee Sys	1.3	ERD
Stormwater	4.0	ERD
ECP	4.4	ERD
Ecological Eng S	4.5	ERD
Kissimmee	5.0	ERD
Business Ops	5.5	ERD
Proj Control	6.0	ERD
Everglades Sys	10.7	ERD
Exec Dirs &	2.0	EXO
Emerg Mgmt	2.0	EXO
Supplier	6.0	EXO
Budget	5.0	FIN
Accounting	7.0	FIN
Dept Dir & Staff	9.0	FIN
Regulation	6.0	FinM
Service Cntr & St	19.0	FinM
Dept Dir & Staff	2.0	GPA
Business Ops	3.0	GPA
Mass Media	3.0	GPA
Outreach	4.0	GPA
Education	6.0	GPA
Dept Dir & Staff	2.0	ITD
Info Serv	3.0	ITD
Proj Mgmt	5.7	ITD
Infrastruct	6.0	ITD
Visual	7.0	ITD
Training	8.0	ITD
Dept Dir & Staff	0.5	MIA SC
Security	1.0	OBR
Dept Dir & Staff	1.3	OBR
General	3.7	OBR
Procuremnt	4.2	OBR
Human Resource	4.6	OBR
Flight	5.0	OBR
Enterprise	6.0	OBR
ERP	4.0	OK SC
Dept Dir & Staff	0.7	OMD
Engrg	2.0	OMD
Pump	2.4	OMD
Veg	3.5	OMD
Ops	3.5	OMD
Kiss	4.6	OMD
WPB	4.7	OMD
OpSup + Staff	5.3	OMD
Clew	5.4	OMD
Home	5.7	OMD
Okee	5.8	OMD
Miami	6.3	OMD
Ft. L	6.8	OMD
Admin	1.0	OR SC
SW & FE	4.0	OR SC
Steward	4.0	OR SC
NRM & WU	5.0	OR SC
Dept Dir & Staff	1.5	PLN
Policy	3.7	PLN
Lower East Coast	4.6	PLN
Upper Dist	4.6	PLN
Modeling	5.5	PLN
Tech Team	5.5	PLN
Dept Dir & Staff	2.0	REG
EAA	2.2	REG
NRM	3.7	REG
Complianc	3.8	REG
Surface Water	4.3	REG
Info Mgmt	5.0	REG
Water Use	8.0	REG
Dept Dir & Staff	1.0	StL SC
Div Admin	1.0	WRE
WQM Staff	1.0	WRE
Chem Lab	1.7	WRE
Dept Dir & Staff	2.0	WRE
Organics Proj	2.0	WRE
WPB Data	4.4	WRE
Data & Geo Info	5.5	WRE
Okee Data	6.0	WRE
Resource Assess	6.1	WRE
Electronic Suppo	7.2	WRE
Hydro Data Procc	7.6	WRE
Quality Assuranc	10.0	WRE
Total Divisions	91	

4.4 median
4.2 average

Span of Control and
Levels of Management

Exhibit 3
District-wide
January 1, 1997

Level		Inspector General	Big Cypress Basin	GPA	Non-Reg/Maint Svc. Ctrs (2)	Executive Office	Budget & Procurement	Counsel	Regulatory Svc Ctrs (1)	Enterprise Engineering Management Services	REG	PLN	ERD	CLM	WRE	OMD	District-wide	
	Layers of Mgmt/Supervision	1	1	2	3	4	3	3	3	3	4	5	4	3	5	5	6	8
	Total Managers	1	4	1	2	4	3	4	4	6	6	9	7	12	11	7	22	103
	Total Supervisors	0	0	4	2	3	2	9	13	9	16	17	18	18	26	37	75	249
	Total Managers + Supervisors	1	4	5	4	7	5	13	16	15	22	26	25	30	37	44	97	351
	Non-Supv Positions (Regular)	6	22	18	17	13	34	33	60	80	70	105	105	77	120	175	446	1381
	Non-Supv Positions (Leased)	0	0	0	1	0	1	0	0	1	12	0	8	36	4	31	0	94
	Total Non-Supv Positions	6	22	18	18	13	35	31	60	81	82	105	113	113	124	206	446	1473
	Total Positions	7	26	23	22	20	40	43	76	96	104	131	138	143	161	250	543	1823
	Span of Control Ratio	6	5.50	3.60	4.50	1.86	7.00	2.38	3.75	5.40	3.73	4.04	4.52	3.77	3.35	4.68	4.60	4.20

Span of Control

Range for Departments:

1.86 to 7.00

Median Department Ratio:

4.27

Layers of Management/Supervision

Range for Departments:

1 to 6

Median # of Layers:

3

Notes

(1) Service centers with regulatory responsibilities include: Ft. Myers, Okeechobee, Orlando

(2) Service centers with neither regulatory nor operations & maintenance responsibilities include Keys, Broward, Miami, Martin

Span of Control and
Levels of Management

Exhibit 4
District-wide
January 1, 1999

Level		Inspector General	Big Cypress Basin	GPA	Non-Reg/Maint Svc. Ctrs (2)	EXO, EMgt, SDO, Ombudsman	Office Financial Management	Counsel	Regulatory Service Ctrs (1)	OEE/ITD	OBR	REG	PLN	ERD	CLM	WRE	OMD	District-wide
	Layers of Mgmt/Supervision	1	3	2	2	3	3	3	3	3	4	5	4	3	5	5	5	7
	Total Managers	1	2	1	4	4	3	3	3	6	6	9	7	12	11	7	21	100
	Total Supervisors	0	2	4	1	3	2	12.5	10	9	16	17	18	19	26	37	73	249.5
	Total Managers + Supervisors	1	4	5	5	7	5	15.5	13	15	22	26	25	31	37	44	94	349.5
	Non-Supv Positions (Regular)	6	17	18	19	18.5	34	30	75	78	70	104.5	104	87	115	176	433.5	1385.5
	Non-Supv Positions (Leased)	0	1	0	0	2	1	1	5	1	12	0	8	35	4	31	0	101
	Total Non-Supv Positions	6	18	18	19	20.5	35	31	80	79	82	104.5	112	122	119	207	433.5	1486.5
	Total Positions	7	22	23	24	27.5	40	46.5	93	94	104	130.5	137	153	156	251	527.5	1836
	Span of Control Ratio	6.00	4.50	3.60	3.80	2.93	7.00	2.00	6.15	5.27	3.73	4.02	4.48	3.94	3.22	4.70	4.61	4.25

Span of Control

Range for Departments: **2.0 to 7.0**

Median Department Ratio: **4.25**

Layers of management

Range for Departments: **1 to 5**

Median # of Layers: **3**

Notes

(1) Service centers with regulatory responsibilities include: Ft. Myers, Okeechobee, Orlando

(2) Service centers with neither regulatory nor operations & maintenance responsibilities include Keys, Broward, Miami, Martin

Exhibit 5
Division-Level Example: Water Resources Evaluation Department
January 1, 1999

Level	Positions providing management or supervision at this level	Dept Dir & Staff	Div Admin	Hydro Data Process	Data & Geo Info Sys	WQM Staff	Chem Lab	Quality Assurance	WPB Data	Okee Data	Organics Proj	Resource Assess	Electronic Support	Department Wide
5	Dept Dir	0.5												0.5
4	Div Dir, Supv Chemist						0.5							0.5
3	Div Dir, Sr Env Scientist, Sr Chemist, Supv Chemist						0.5		0.5		0.5		0.5	2
2	Sr Field Ops Supv, Sr Supv Hydrogeologist, Div Dir, Staff Hydro, Sr Env Scientist, Sr Field Ops Supv, Staff Chemist, Sr Chemist, Supv Chemist, Sr Ops Supv			0.5	0.5	0.5	1.5		1	0.5	1	0.5	1.5	7.5
1	Electronics Supv, Supv Engr Assoc, Sr Field Ops, Sr Supv Env Scientist, Lead Eng, Sr Supv Eng, Sr Supv Eng Assoc, Sr Scientific Assoc, Staff Hydro, Sr Env Scientist, Sr Supv Sci Assoc, Sr. Field Ops Supv, Staff Env Scientist, Quality Assurance Supv, Staff Lab Analyst, Staff Chemist, Sr Chemist, Supv Chemist, Sr Admin Resource Assoc, Sr Geographer, Sr Ops Supv, Lead Env Scientist	2.5	1	4.5	1.5	1.5	4.5	1	3.5	1.5	1.5	6.5	4	33.5
	Layers of Mgmt/Supervision	2	1	2	2	2	4	1	3	2	3	2	3	5
	Total Managers	2	1			1			1			1	1	7
	Total Supervisors	1		5	2	1	7	1	4	2	3	6	5	37
	Total Managers + Supervisors	3	1	5	2	2	7	1	5	2	3	7	6	44
	Non-Supv Positions (Regular)	6	1	35	11	2	9	7	14	10	2	38	41	176
	Non-Supv Positions (Leased)			4			3	3	8	2	4	5	2	31
	Total Non-Supv Positions	6	1	39	11	2	12	10	22	12	6	43	43	207
	Total Positions	9	2	44	13	4	19	11	27	14	9	50	49	251
	Span of Control Ratio (N-S Emps/M+S)	2	1	7.8	5.5	1	1.71	10	4.4	6	2	6.14	7.17	4.70

Span of Control

Range:

1 to 10

Median Ratio:

5.10

Layers of Management/Supervision

Range:

1 to 4

Median # of Layers:

2

Exhibit 6
Worksheet for Estimating Optimum Span of Control

DIVISION	
EVALUATOR	

	Factor**					
	1	2	3	4	5	
	Nature of Work					
Complex						Not Complex
	Similarity of Activities Performed					
Different						Similar
	Clarity of Organizational Objectives					
Not Clear						Clear
	Degree of Task Certainty					
Fuzzy						Definite rules
	Degree of Risk in the Work for the Organization					
High						Low
	Degree of Public Scrutiny					
High						Low
	Number or Frequency of Temporary Staff					
Many						Few
	Employee Turnover					
High						Low
	Supervisor's Experience and Skill Managing Staff					
Weak						Strong
	Supervisor's Burden of Non-Supervisory Duties					
Heavy						Light
	Degree of Coordination Required					
High						Low
	Availability of Staff Assistance					
None						Abundant
	Qualifications & experience of Subordinates					
Weak						Strong
	Geographic Location of Subordinates					
Dispersed						Together

Factors Result 0.0

Predominant Disciplines:

**The concept for this worksheet was developed from a list of factors and range names in Ratio of Staff to Managers in City Government, Office of the City Auditor, Seattle WA, 1996.

Exhibit 7

Guidelines for Defining Managers and Supervisors State of Texas Auditor's Office

A **Manager** has the responsibility for strategic operations and planning and:

- Formulates statewide policy or directs the work of an agency, higher education institution, or subdivision; OR
- Administers one or more statewide policies or programs of an agency, higher education institution or subdivision; OR
- Manages, administers and control a local branch office of an agency, higher education institution or subdivision, including the physical, financial, or human resources; OR
- Has substantial responsibility in human resources management, legislative relations, public information, or the preparation and administration of budgets;

AND

- Exercises supervisory authority that is not merely routine or clerical in nature and requires the consistent use of independent judgment.

A **Supervisor** is an employee who has responsibility for daily operations and the authority to do, or effectively recommend, most of the following actions:

- Hire
- Discipline (demote, suspend, terminate)
- Reward (grant merit increases, promotions, bonuses)
- Assign/reassign duties
- Approve leave requests
- Resolve/settle employee relations problems
- Formally evaluate employee performance